

# The VanElleGraph

www.van-elle.co.uk

Winter 2011

## Message from our Chairman...

**2012** is just a few weeks away and yet another year has passed in a flash. The year has been very eventful with many of our competitors either falling by the wayside, merging or being sold. As a result, I am delighted to announce that Van Elle are now officially the largest independent geotechnical contractor in the UK. More importantly and against a background of fierce competition, and in some cases suicidal pricing, our turnover and profits continue to grow as our clients recognise our ability to provide a competitive, value engineered 'one stop shop' service.

We have been involved with many large and high-profile projects in the past year and have a healthy forward order book into 2012. We have also had reason to celebrate, having been named 'Ground Engineering Contractor of the Year' at the 2011 Specialists Awards. We were also a finalist in the Construction News Awards and were highly commended at the ICE East Midlands Merit Awards.

During the year we have opened two new offices in Scotland and the South East with others planned in the North and South West areas. We have, for the first time since 2008, budgeted £3 million of capital investment in our financial year ending April 2012 for new plant and equipment. This includes new vans, lorries, rotary rigs and a new Llamada piling rig bringing our CFA fleet to 10. We have stepped up our rotary capabilities and taken on new staff to strengthen our management and delivery teams. The service we provide to our clients has always been our top priority and although, at times, it has been very challenging, the dedication and hard work of our staff has enabled us to continue to provide the best service in the industry. On that note, I would like to publicly thank everyone at Van Elle for all their hard work throughout the year, without which we would not be the company we are today and able to lead our sector into 2012 and beyond.



I am delighted to announce the appointment of Rob Hefford as our new Group Finance Director. Rob joins us with a wealth of experience gained through many years in the construction industry and he will be a major asset to The Group. In addition, a number of other new key staff appointments will be announced soon.

We remain extremely confident for our future prospects with statistical proof that we are increasing, year on year, our market share.

Finally, I want to thank you, our loyal clients, for continuing to support us in these difficult times. We must continue to work with each other and not against to our mutual benefit. May I wish everyone a very Happy Christmas and a prosperous New Year.

**Michael Ellis - Chairman**

## Van Elle launches new Info-packed website

Following our success over the past 12 months and the expansion of our portfolio to offer a number of additional services, we have recently launched our new website. Named as finalists in the 'Best Use of Technology' category in this year's Construction News Awards and with a continued interest in integrating beneficial technology within our business, we have optimised the usability, searchability and amount of useful information held on this new and improved media outlet.

Incorporating social media links, many new case studies & rig data sheets, details of the products & services we offer and the sectors in which we operate, it caters for all of our clients' needs regardless of the project size, location and required solution all with one click of a button. Please take a look for yourself at [www.van-elle.co.uk](http://www.van-elle.co.uk) and watch out for our regular updates.

## Helping to build confidence

In a further attempt to reduce the hundreds of prequalification questionnaires we receive each year and to further demonstrate our determination to be the best and work with our clients to make the industry better, we have recently and successfully completed our Building Confidence audit, becoming an approved contractor.



### Did you know.....

The tallest wind turbine in the world has rotor tips that reach over 200 metres (656 feet) above the ground.

Each year in Sweden, an igloo hotel is built which has the capacity to sleep 100 people.

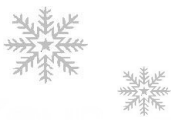
*Merry Christmas & A Happy New Year!*



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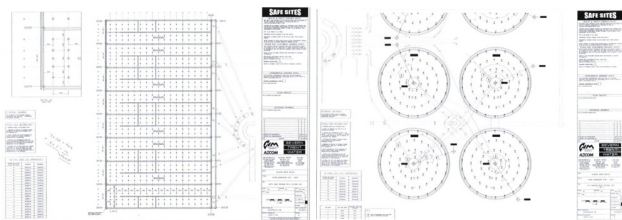
# Stoke Bardolph WWTW



**Client:** Severn Trent Water.  
**Principal Contractor:** NMC Nomenca  
**Project Location:** Stoke Bardolph, Nottingham  
**Project Overview:** The piling to form the foundations for a new ASP (Activated Sludge Plant) including 8 lane aeration and 8No. FST (Final Settlement Tanks).

Having successfully completed the Waste Water Treatment projects at both Minworth and Stoke Lyme Valley for North Midland Construction, Van Elle were approached to discuss possible design and installation options for the piling at Stoke Bardolph, a huge plant on the east side of Nottingham.

Although a large open site with the works spread over a considerable area, loose granular material had been discovered down to about 4m and the requirement for such a thick and extensive piling platform made it more cost effective to use some of our lighter fleet to carry out the work. This also enabled the Final Settlement Tanks to be excavated prior to commencement of the piling as the rigs could drill safely whilst sat on the incline.



ASP with 8 lane aeration

Final Settlement Tanks

We opted for two different rigs which were ideally suited to the task at hand; the Soiltec S45 and the Hütte HBR205. Both have proven themselves on similar projects in the past and are reliable with relatively low bearing pressures yet are extremely powerful and versatile, able to safely work from a sloped location which wouldn't have been possible for a larger rig.

Once the site had been de-watered, we first carried out 12No. tension pull-out tests on working piles to check both the rock level and that our design performed to the project specification. The results were excellent and proved that our proposed solution was ideal for the project requirements.

We were then able to begin the piling for the Activated Sludge Plant.



This is a series of huge tanks which were piled on a grid pattern as can be seen in the diagram on page 1.



In total 1056No. 350mm diameter piles were installed with a single bar and a rocket socket of 3.6m.

The FSTs, shown in the upper right image were piled in concentric circles and the smaller rig, capable of working on a sloped platform, enabled the excavations to be carried out prior to the piling. This worked very well for the programme and for the sequence of works allowing the groundworks to be undertaken whilst we were piling the ASP.

## What our clients say.....

"My last 2 dealings with Van Elle have been major flagship schemes for Severn Trent; Minworth(AMP4) and Stoke-Lyme Valley(AMP5). They are open to collaborative working and adopt a pro-active approach in engaging other contractors whose activities they interfaced with. They delivered a quality product, in budget and on programme."  
**Lee Tilley, North Midland Construction Project Manager**

## Investing in innovation...



As part of Van Elle's continued expansion and investment in new rigs, equipment, personnel, offices and innovative ground stabilisation & piling techniques, we have



recently taken delivery of a new 150 tonne DAF 105XF wagon, a Llamada P140TT large CFA rig and a bespoke Klemm KR708-2 capable of working in only 3.5m headroom and installing 600mm diameter SFA piles with 660mm casing.



This is the first of its kind in the UK and is ideally suited to working in basements, railway tunnels and other such restricted access locations.

## A New Start...

We are pleased to announce that due to expansion within the business and having recently completed his Masters in Civil Engineering, former placement student, Ashley Rogers has joined our Restricted Access Piling team as Graduate Engineer.



Carol Perez has joined us as Marketing Co-ordinator having previously worked within the piling sector for a number of years, Jaclyn Suffling (pictured left) has joined our Eastern team as Sales Secretary and Rob Samms has joined us as Business Development Manager (Southern Region) from BBGE.



As developing and maintaining our supplier relationships is essential to Van Elle's success, our purchasing team has also been joined by Jennifer Chambers.

Finally, we are absolutely delighted to announce that Peter Handley, is to return to Van Elle in the New Year as Piling Director from Cementation Skanska. **Welcome All!**



- Site Investigation
- Drilling & Grouting
- Ground Anchors & Soil Nails
- Piling
- Restricted Access Piling
- Smartfoot® Precast Modular Foundations
- Soilmixing

## Did you know.....

The deepest cave in the world is the "Lamprechtsofen-Vogelshacht" which can be found in Salzburg, Austria.

It is 5,354 feet deep.



**S**cotswood Expo is a £250 million residential development project covering an area of 42 Hectares west of Newcastle Upon Tyne city centre.

Originally a densely populated social housing area, the site was demolished and Galliford Try were appointed Main Contractor to carry out enabling works in preparation for the new build programme of works.

A major part of the enabling works was the location and treatment of five known coal seams and eight recorded mineshafts across the site. The coal seams sub crop at shallow depths beneath a sloping terrain rising from the River Tyne in a northerly direction.

Van Elle were appointed by Galliford Try to carry out the mine stabilisation project on an all risks basis tender valued in excess of £2 million pounds making it the largest single mine consolidation project carried out to date in the Northern Coalfield. Whilst part of the site was covered by some historical mine records the majority of the workings pre dated the legal requirement to be recorded and in preparing the bid, Van Elle carried out an extensive desk study researching available site investigation records, old mine and OS plans, archive information and extensive in-house records of previous work carried out in the area.



Above: Casagrande C6 Drilling.

The works were carried out on programme during 2010-2011 utilising a variety of track and tyre mounted rigs, flushing with water and air/mist where appropriate. A primary grid to ascertain the presence of mine workings at depths shallow enough to risk surface subsidence was carried out and where at risk areas were encountered, a secondary grid of boreholes were drilled on a 3.5 metre pattern and a 10:1 PFA/Cement grout was injected. Grout testing was undertaken under supervision from Halcrow and a staged release of consolidated areas handed back to Galliford Try.

Where mine entries were known, a series of boreholes were drilled at 1.5 metre centres to establish the exact location and diameter of the shaft which was then drilled to depth and stage grouted to consolidate the shaft fill. A reinforced concrete cap was then constructed over the treated shaft at rockhead. In some cases this involved extensive earthworks also carried out in-house by Van Elle.

## BOOK A CPD

As a CPD certified training provider we offer both existing and prospective clients the opportunity for us to visit their offices, giving presentations and providing free technical training and advice to professionals within our industry.

If you would like to arrange for us to come along to your offices and give a presentation, please contact Mark Williams on Tel: 01773 580580 or e-mail [marketing@van-elle.co.uk](mailto:marketing@van-elle.co.uk)



## Scotswood Expo

Eight shafts were shown on the historical records and by the end of the main works, eleven shafts had been found and treated.

With full time supervision by our Site Manager, an experienced engineering geologist, and two experienced Supervisors supported by our regional office we were able to react and adjust borehole grids and locations on a daily basis giving optimum results to the client.

During the course of the project Van Elle staff and operatives worked in excess of 50,000 accident free hours.

The following principal quantities indicate the size of the works carried out:

- 10,000 boreholes
- 200,000 metres of drilling
- 20,000 tonnes of dry weight grout injected
- 25,000 cubic metres of earthworks
- 88 tonnes of reinforcement fixed and placed
- 175 cubic metres of concrete poured

**Client:** Newcastle City Council.

**Consulting Engineer:** Halcrow.

**Principal Contractor:** Galliford Try



Van Elle actively encourage safer ways of working through our safety scheme (Think Safety, Act Safely) which is emblazoned across all of our PPE. With 95% of our staff holding the relevant CSCS card, we have retained the platinum level of accreditation and all of our foremen, not just supervisors, have completed their SSSTS (Site Supervisor Safety Training Scheme).

We have implemented a hazard & near-miss reporting system helping to prevent accidents rather than making procedural changes in hind-sight. This has been a huge success seeing a significant year-on-year increase with 566 reports so far in 2011 compared to only 18 five years ago. Our accident incident rate (AIR) has also dropped by 2/3 and the overall number of accidents has reduced by 40% over the same period.

In addition, a safety attitude survey is carried out annually across the workforce, prompting improvements in working practices and collaboration between our offices and divisions, ensuring that we all learn from others' experiences helping to make both our staff and others contractors on site as safe as possible at all times.



**Project:** One of three new testing facilities being developed at the National Renewable Energy Centre's existing site in Blyth.

**Van Elle Involvement:** Bearing pile foundation design and installation for the new 'Blade Test Facility 2' (BTF2).

**Client:** National Renewable Energy Centre (NaREC)

**Principal Contractor:** Shepherd Construction Limited

**Engineer:** Arup

### Scope of Work:

- Probing through existing Dry Dock floor prior to the mobilisation of the Soilmec CM70 CFA Piling Rig.
- 66No 450mm dia. CFA piles to 14m (max) deep.
- 397No 600mm dia. CFA piles to 18m (max) deep.
- 84No 750mm dia. CFA piles designed by Arup to depths of 15m using C60 DC-3 concrete.
- Proof load testing of 5No. working piles.
- Integrity testing 25% of all working piles.

Pile locations were situated on the site of the existing test centre business units and car parking facilities. At the north end of the site there were 2 existing backfilled dry docks with concrete bases. Prior to mobilisation of the piling rig, the client carried out demolition works to the existing structures, removed and/or relocated existing services including a water main that bisected the site and removed contaminated materials, from site.

Our tender, design and construction risk assessments highlighted a number of concerns which may have been detrimental to the successful completion of the works:

### Geotechnical:

To meet the tight performance requirements, our design required 600mm diameter piles, the majority of which would have to penetrate relatively weak coal measures to reach stronger underlying sandstone where we found a substantial rock socket. This created specific constructability concerns. The sandstone was to provide the majority of the bearing capacity and the mudstone was to provide essential additional skin friction to help meet the tight settlement criteria, however, the actual level and strength of the sandstone across the site varied greatly. A rig capable of boring the sandstone without polishing the coal measures above through over rotation of the auger, was essential. This was achieved using our high-powered Soilmec CM70 with a 1 tonne pull down winch and 156 kNm of torque.

Confirmation of the sandstone depth was accomplished through a number of trial bores across the site. These were correlated to the piling rig's computer instrumentation records and the sandstone level by identifying the small increases in torque, penetration rate and rotational energy. This provided construction confidence, enabling us to indicate to the rig operator what he should expect to see when boring.

The 83No. piles installed in the former dry dock area of the site were bored through approx. 10m of soft/loose fill, the 1m thick concrete bases and into the mudstone and sandstone directly below. To ensure this we mobilised a smaller drilling and probing rig to site from our restricted access fleet. This was used to carry out open hole probes to the dock floor which was then cored through using rock roller and a down the hole hammer (DTH).

### What our clients say.....

"The Van Elle Site Team, led by Ed Brown, worked very professionally and bonded well with the Shepherd/Structural design team. I would use Van Elle again."

Arthur Harrison, Shepherd Construction Site Manager

### Concrete:

The calculated stresses on a large proportion of the piles resultant from the relationship between load vs cross sectional area meant that we initially envisaged using high strength C35/45 and C60 concrete mixes with DC-3 design classifications. For the CFA method to be installed efficiently, it is essential that the concrete maintains a high workability, normally having an S4 slump of around 180mm. Maintaining this slump until after placement of the steel reinforcing cage is crucial to the successful completion of the pile.



Unfortunately, by its very nature, high strength concrete has a high cement content, the properties of which counteract with the desired characteristics CFA piling where workability over an extended period of time is of great importance. The concrete strength and durability requirements at NaREC necessitated an extremely high cement content in the mix designs; up to 480kg/m<sup>3</sup>. This would reduce the workability lifespan of the concrete and any delay to pumping it would present a high risk of blockages in the pipelines and create difficulty when placing the 13 - 15m long reinforcing cages. We designed our methods around these risks and working closely with a supplier who could provide a mix designed to meet our specific requirements of both high strength and extended workability and deliver to site at the time required was of primary importance. Trial mixes were carried out prior to our mobilisation to site to ensure that the high workability mixes, designed by Tarmac, could achieve their specified strengths.

Our in-house design team contributed to the success experienced on site through designing-out the higher risk concrete grades wherever possible. A value engineering and risk management exercise highlighted approximately 265 piles which could be installed using a lower specification C28/35 strength concrete.

In summary, the project consisted of 547 piles of varying diameters, lengths, 17 load characteristics, 17 different cage configurations and lengths, a range of cut-off levels, diverse soil conditions and 3 different concrete mix designs across the site.

### Results:

We successfully designed, installed and tested all the foundation piles using reinforcing cages up to 15m in length to cater for varying loading conditions in compression, horizontal and tension cases. The performance of the piles under loading was tested in both compression and tension and was proven in all cases to be more than satisfactory.

**Van Elle's Project Value:** £1,050,000.00